

ANNUAL AMS MEETING

Challenges in Transitioning Research Data to Operations: The SPoRT Paradigm

Established in 2002 to demonstrate the weather and forecasting application of real-time EOS measurements, the NASA Short-term Prediction Research and Transition (SPoRT) program has grown to be an end-to-end research to operations activity focused on the use of advanced NASA modeling and data assimilation approaches, nowcasting techniques, and unique high-resolution multispectral data from EOS satellites to improve short-term weather forecasts on a regional and local scale. With the ever-broadening application of real-time high resolution satellite data from current EOS and planned NPP, JPSS, and GOES-R sensors to weather forecast problems, significant challenges arise in the acquisition, delivery, and integration of the new capabilities into the decision making process of the operational weather community. For polar orbiting sensors such as MODIS, AIRS, VIIRS, and CRiS, the use of direct broadcast ground stations is key to the real-time delivery of the data and derived products in a timely fashion. With the ABI on the geostationary GOES-R satellite, the data volume will likely increase by a factor of 5-10 from current data streams. However, the high data volume and limited bandwidth of end user facilities presents a formidable obstacle to timely access to the data. This challenge can be addressed through the use of subsetting techniques, innovative web services, and the judicious selection of data formats. Many of these approaches have been implemented by SPoRT for the delivery of real-time products to NWS forecast offices and other weather entities. Once available in decision support systems like AWIPS II, these new data and products must be integrated into existing and new displays that allow for the integration of the data with existing operational products in these systems. SPoRT is leading the way in demonstrating this enhanced capability. This paper will highlight the ways SPoRT is overcoming many of the challenges presented by the enormous data volumes of current and future satellite systems to get unique high quality research data into the operational weather environment.